ModelE Timing Comparison: CX1 vs Discover

This document is intended to present timing comparisons between 30-day runs of the ModelE E1F20 rundeck on Discover and a Cray CX1 "desktop supercomputer". Runs were limited to at most 16 cpus, as the CX1 currently configured only has two available compute nodes.

System specifications

One CX1 compute node

2 x Xeon X5472 @ 3ghz (8 cores total)

32gb RAM

mvapich2 v1.2p1 MPI Library

Intel v10.1 Fortran/C compiler

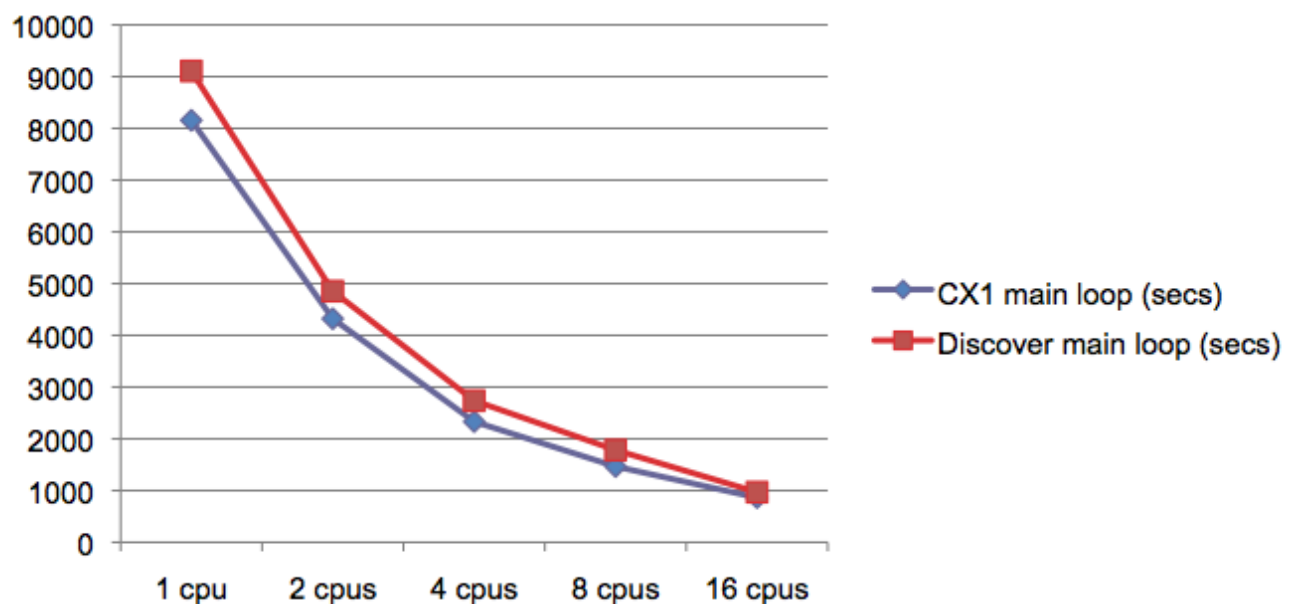### One Discover "Harpertown node"

2 x Xeon X5482 @ 3.2ghz (8 cores total)

16gb RAM

Intel v.3.2.011 MPI Library

Intel v10.1 Fortran/C compiler

Results

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	CX1 main loop (secs)	Discover main loop (secs)	CX1 walltime	Discover walltime
1 cpu	8155	9108	136m1.741s	152m20.945s
2 cpus	4321	4854	72m6.934s	81m5.282s
4 cpus	2332	2737	38m57.711s	45m58.008s
8 cpus	1465	1782	24m33.085s	30m1.541s
16 cpus	863	969	14m30.730s	16m48.094s